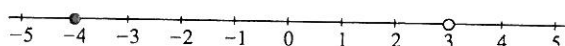


## COORDINATE GEOMETRY

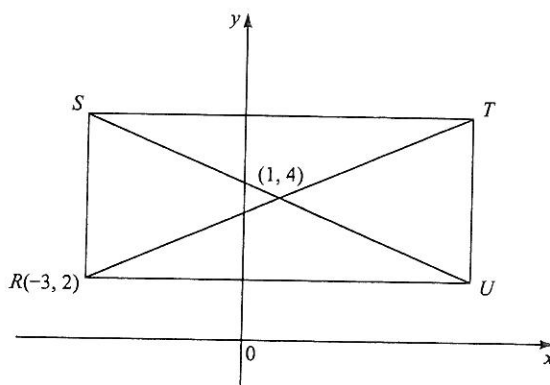
These questions will test your knowledge of operations involving number line graphs; the equation of a line; slope; and the distance and midpoint formulas. Coordinate Geometry questions make up approximately 15 percent of the ACT Mathematics Test.

### Difficulty Level: Easy

1. Which of the following inequalities represents the graph shown below on the real number line?



- A.  $-4 \leq x < 3$
  - B.  $-4 \leq x < 2$
  - C.  $0 \leq x < 3$
  - D.  $4 \leq x \leq 4$
  - E.  $3 < x \leq -4$
2. As shown below, the diagonals of rectangle  $RSTU$  intersect at the point  $(1, 4)$  in the standard  $(x, y)$  coordinate plane. Point  $R$  is at  $(-3, 2)$ . Which of the following are the coordinates of point  $T$ ?



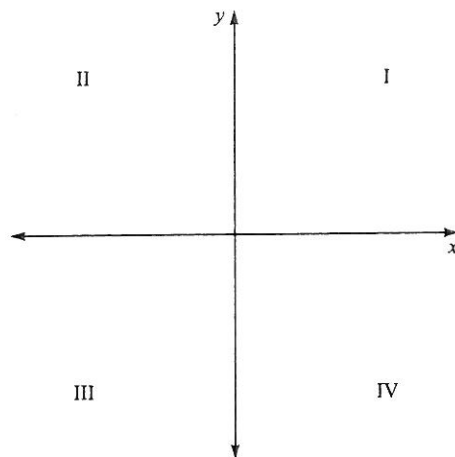
- F.  $(-3, 6)$
  - G.  $(4, 5)$
  - H.  $(5, 5)$
  - J.  $(5, 6)$
  - K.  $(7, 6)$
3. What is the slope of any line parallel to the line  $2x - 3y = 7$ ?
- A.  $-3$
  - B.  $-\frac{2}{3}$
  - C.  $\frac{2}{3}$
  - D.  $2$
  - E.  $3$

4. If two lines in the standard  $(x, y)$  coordinate plane are perpendicular and the slope of one of the lines is  $-5$ , what is the slope of the other line?
- F.  $-5$
  - G.  $-1$
  - H.  $-\frac{1}{5}$
  - J.  $\frac{1}{5}$
  - K.  $5$

**Difficulty Level: Medium**

5. What is the distance, in coordinate units, between the points  $(3, 5)$  and  $(-4, 1)$  in the standard  $(x, y)$  coordinate plane?
- A.  $\sqrt{27}$
  - B.  $4\sqrt{2}$
  - C.  $8$
  - D.  $8\sqrt{2}$
  - E.  $\sqrt{65}$
6. Which of the following is an equation of the line that passes through the points  $(-3, 11)$  and  $(1, 5)$  in the standard  $(x, y)$  coordinate plane?
- F.  $3x + 2y = 13$
  - G.  $2x + 3y = 21$
  - H.  $2x + 2y = 16$
  - J.  $x + 3y = 16$
  - K.  $x + y = 6$

7. The graph of the line with the equation  $-5y = 25$  does NOT have points in what quadrant(s) on the standard  $(x, y)$  coordinate plane below?



- A. Quadrant I only
- B. Quadrant II only
- C. Quadrant III only
- D. Quadrants I and II only
- E. Quadrants II and III only

**Difficulty Level: Hard**

8. An angle in the standard position in the standard  $(x, y)$  coordinate plane has its vertex at the origin and its initial side on the positive  $x$ -axis. If the measure of the angle in the standard position is  $2,585^\circ$ , it has the same terminal side as an angle of each of the following measures EXCEPT:
- F.  $-1,375^\circ$
  - G.  $-295^\circ$
  - H.  $65^\circ$
  - J.  $435^\circ$
  - K.  $785^\circ$

9. In the standard  $(x, y)$  coordinate plane,  $\left(4, \frac{5}{3}\right)$  is halfway between  $(a, a + 3)$  and  $(2a, a - 5)$ . What is the value of  $a$ ?
- A.  $\frac{4}{3}$
  - B.  $\frac{8}{3}$
  - C. 4
  - D.  $\frac{9}{2}$
  - E. 6
10. What is the perimeter of quadrilateral  $QRST$  if it has vertices with  $(x, y)$  coordinates  $Q(0,0)$ ,  $R(1,3)$ ,  $S(4,4)$ , and  $T(3,1)$ ?
- F. 100
  - G. 40
  - H.  $6\sqrt{2} + 2\sqrt{10}$
  - J.  $4\sqrt{10}$
  - K.  $2\sqrt{10}$